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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/827,144	04/19/2004	Takako Takasu	0553-0407	2713

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CHICAGO, IL 60606

EXAMINER	
DONG, DALEI	

ART UNIT	PAPER NUMBER
2879	

DATE MAILED: 06/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/827,144	TAKASU ET AL.	
	Examiner	Art Unit	
	Dalei Dong	2879	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 April 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-18* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 April 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4/19/2004*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claims 3, 4 and 9-12 are objected to because of the following informalities:

Regarding to claims 3, the word "form" should be changed to from;

Regarding to claims 4, the word "form" should be changed to from;

Regarding to claims 9, the word "form" should be changed to from;

Regarding to claims 10, the word "form" should be changed to from;

Regarding to claims 11, the word "form" should be changed to from;

Regarding to claims 12, the word "form" should be changed to from;

Appropriate correction is required.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,602,395 to Zhuang in view of U.S. Patent No. 6,747,405 to Hosokawa in further view of U.S. Patent No. 5,952,115 to Hu.

Regarding to claim 1, Zhuang discloses in Figures 5 and 7, a method for manufacturing an electroluminescent device (OLED 100) comprising a step of forming electroluminescent layer (polymer emitter 200) between a pair of electrodes (anode 14 and cathode 12) in the electroluminescent device (OLED 100), wherein the electroluminescent layer (200) is formed using an electrochemical method (shown in Figure 5) by flowing a current to one of the pair of electrodes (anode 14) with a current density from 0.4 to 1.5 mA/cm^2 (see column 4, line 51 to column 5, line 37).

However, Zhuang does not disclose applying the current for 0.8 to 3.0 seconds.

The Hosokawa reference teaches it is old and well known in the art that the electrolysis time is adjusted in accordance to the thickness of the electroluminescent layer being formed (see column 15, lines 42-56) for the purpose of preventing color mixture and change in chromaticity even if a viewing angle is changed.

Furthermore, the Hu reference teaches it is old and well known in the art to have adjusted the electroluminescent layer in the range of 6 nm (see column 27, lines 41-63) as disclosed by the Applicant to obtain the applying current time for the purpose of enhancing thermal stability and operational stability.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the current density of Zhung with adjusted the current applying time as taught by Hosokawa to form a electroluminescent layer with thickness taught by Hu in order to prevent color mixture and change in chromaticity even if a viewing angle is changed and enhance thermal stability and operational stability. Further, it has been held that where the general conditions of a claim are disclosed in the

prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Regarding to claim 2, Regarding to claim 1, Zhuang discloses in Figures 5 and 7, a method for manufacturing an electroluminescent device (OLED 100) comprising a step of forming electroluminescent layer (polymer emitter 200) between a pair of electrodes (anode 14 and cathode 12) in the electroluminescent device (OLED 100), wherein the electroluminescent layer (200) is formed using an electrochemical method (shown in Figure 5) by flowing a current to one of the pair of electrodes (anode 14) with a current density from 0.4 to 1.5 mA/cm^2 (see column 4, line 51 to column 5, line 37).

However, Zhuang does not disclose applying the current for 0.8 to 3.0 seconds and wherein total quantity of electrical charge per unit area of one of the pair of electrodes is from 1.0 to 1.2 mC/cm^2 in the electrochemical method.

The total quantity of electrical charge per unit area of one of the pair of electrodes is merely a product of the current density and the time of the current applied, thus the Examiner asserts as long as the current density and the time of the current applied is taught by the prior art of record, the total quantity of electrical charge per unit area of one of the pair of electrodes is also taught.

The Hosokawa reference teaches it is old and well known in the art that the electrolysis time is adjusted in accordance to the thickness of the electroluminescent layer being formed (see column 15, lines 42-56) for the purpose of preventing color mixture and change in chromaticity even if a viewing angle is changed.

Furthermore, the Hu reference teaches it is old and well known in the art to have adjusted the electroluminescent layer in the range of 6 nm (see column 27, lines 41-63) as disclosed by the Applicant to obtain the applying current time for the purpose of enhancing thermal stability and operational stability.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the current density of Zhung with adjusted the current applying time as taught by Hosokawa to form a electroluminescent layer with thickness taught by Hu in order to prevent color mixture and change in chromaticity even if a viewing angle is changed and enhance thermal stability and operational stability. Further, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Regarding to claim 3, Zhung discloses in Figures 5 and 7, the electroluminescent layer (200) comprises a compound selected from the group consisting of pyrrol, indol, thiophene, 3,4-ethylenedioxythiophene, benezene, naphthalene, azulene, and phenylene oxide (see column 5, lines 38-53).

Regarding to claim 4, Zhung discloses in Figures 5 and 7, the electroluminescent layer (200) comprises a compound selected from the group consisting of pyrrol, indol, thiophene, 3,4-ethylenedioxythiophene, benezene, naphthalene, azulene, and phenylene oxide (see column 5, lines 38-53).

Regarding to claim 5, Zhuang discloses in Figures 5 and 7, a method for manufacturing an electroluminescent device (OLED 100) comprising a step of forming electroluminescent layer (polymer emitter 200) between a pair of electrodes (anode 14 and cathode 12) in the electroluminescent device (OLED 100), wherein the electroluminescent layer (200) is formed using an electrochemical method (shown in Figure 5) by flowing a current to one of the pair of electrodes (anode 14) with a current density from 0.4 to 1.5 mA/cm^2 (see column 4, line 51 to column 5, line 37).

However, Zhuang does not disclose applying the current for 0.8 to 3.0 seconds and the second electroluminescent layer is formed by vapor deposition.

The Hosokawa reference teaches it is old and well known in the art that the electrolysis time is adjusted in accordance to the thickness of the electroluminescent layer being formed (see column 15, lines 42-56) for the purpose of preventing color mixture and change in chromaticity even if a viewing angle is changed.

Furthermore, the Hu reference teaches in Figure 2, it is old and well known in the art to have adjusted the electroluminescent layer in the range of 6 nm (see column 27, lines 41-63) as disclosed by the Applicant to obtain the applying current time and a first electroluminescent layer (4a) and a second electroluminescent layer (4b) formed by vapor deposition (see column 8, lines 16-25 and column 30, lines 8-53) for the purpose of enhancing thermal stability and operational stability.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the current density of Zhung with adjusted the current applying time as taught by Hosokawa to form the first electroluminescent

layer with thickness taught by Hu in order to prevent color mixture and change in chromaticity even if a viewing angle is changed and enhance thermal stability and operational stability. Further, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Regarding to claim 6, Zhuang discloses in Figures 5 and 7, a method for manufacturing an electroluminescent device (OLED 100) comprising a step of forming electroluminescent layer (polymer emitter 200) between a pair of electrodes (anode 14 and cathode 12) in the electroluminescent device (OLED 100), wherein the electroluminescent layer (200) is formed using an electrochemical method (shown in Figure 5) by flowing a current to one of the pair of electrodes (anode 14) with a current density from 0.4 to 1.5 mA/cm^2 (see column 4, line 51 to column 5, line 37).

However, Zhuang does not disclose applying the current for 0.8 to 3.0 seconds and wherein total quantity of electrical charge per unit area of one of the pair of electrodes is from 1.0 to 1.2 mC/cm^2 in the electrochemical method and the second electroluminescent layer is formed by vapor deposition.

The total quantity of electrical charge per unit area of one of the pair of electrodes is merely a product of the current density and the time of the current applied, thus the Examiner asserts as long as the current density and the time of the current applied is taught by the prior art of record, the total quantity of electrical charge per unit area of one of the pair of electrodes is also taught.

The Hosokawa reference teaches it is old and well known in the art that the electrolysis time is adjusted in accordance to the thickness of the electroluminescent layer being formed (see column 15, lines 42-56) for the purpose of preventing color mixture and change in chromaticity even if a viewing angle is changed.

Furthermore, the Hu reference teaches in Figure 2, it is old and well known in the art to have adjusted the electroluminescent layer in the range of 6 nm (see column 27, lines 41-63) as disclosed by the Applicant to obtain the applying current time and a first electroluminescent layer (4a) and a second electroluminescent layer (4b) formed by vapor deposition (see column 8, lines 16-25 and column 30, lines 8-53) for the purpose of enhancing thermal stability and operational stability.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the current density of Zhung with adjusted the current applying time as taught by Hosokawa to form the first electroluminescent layer with thickness taught by Hu in order to prevent color mixture and change in chromaticity even if a viewing angle is changed and enhance thermal stability and operational stability. Further, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Regarding to claim 7, Zhuang discloses in Figures 5 and 7, a method for manufacturing an electroluminescent device (OLED 100) comprising a step of forming electroluminescent layer (polymer emitter 200) between a pair of electrodes (anode 14

and cathode 12) in the electroluminescent device (OLED 100), wherein the electroluminescent layer (200) is formed using an electrochemical method (shown in Figure 5) by flowing a current to one of the pair of electrodes (anode 14) with a current density from 0.4 to 1.5 mA/cm^2 (see column 4, line 51 to column 5, line 37).

However, Zhuang does not disclose applying the current for 0.8 to 3.0 seconds and the electroluminescent layer comprises a hole injecting layer; a hole transporting layer; and a light-emitting layer wherein the hole transporting layer and the light-emitting layer are formed by vapor deposition.

The Hosokawa reference teaches it is old and well known in the art that the electrolysis time is adjusted in accordance to the thickness of the electroluminescent layer being formed (see column 15, lines 42-56) for the purpose of preventing color mixture and change in chromaticity even if a viewing angle is changed.

Furthermore, the Hu reference teaches in Figure 2, it is old and well known in the art to have adjusted the electroluminescent layer in the range of 6 nm (see column 27, lines 41-63) as disclosed by the Applicant to obtain the applying current time. The Hu reference also teaches the electroluminescent layer comprises a hole injecting layer (4a); a hole transporting layer (4b) and a light-emitting layer (junction where electron and hole recombine) and the hole transporting layer (4b) and the light-emitting layer are formed by vapor deposition (see column 8, lines 16-25 and column 30, lines 8-53) for the purpose of enhancing thermal stability and operational stability.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the current density of Zhung with adjusted

the current applying time as taught by Hosokawa to form a electroluminescent layer with thickness and different components taught by Hu in order to prevent color mixture and change in chromaticity even if a viewing angle is changed and enhance thermal stability and operational stability. Further, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Regarding to claim 8, Zhuang discloses in Figures 5 and 7, a method for manufacturing an electroluminescent device (OLED 100) comprising a step of forming electroluminescent layer (polymer emitter 200) between a pair of electrodes (anode 14 and cathode 12) in the electroluminescent device (OLED 100), wherein the electroluminescent layer (200) is formed using an electrochemical method (shown in Figure 5) by flowing a current to one of the pair of electrodes (anode 14) with a current density from 0.4 to 1.5 mA/cm^2 (see column 4, line 51 to column 5, line 37).

However, Zhuang does not disclose applying the current for 0.8 to 3.0 seconds and the electroluminescent layer comprises a hole injecting layer; a hole transporting layer; and wherein total quantity of electrical charge per unit area of one of the pair of electrodes is from 1.0 to 1.2 mC/cm^2 in the electrochemical method and furthermore, a light-emitting layer wherein the hole transporting layer and the light-emitting layer are formed by vapor deposition.

The total quantity of electrical charge per unit area of one of the pair of electrodes is merely a product of the current density and the time of the current applied, thus the

Examiner asserts as long as the current density and the time of the current applied is taught by the prior art of record, the total quantity of electrical charge per unit area of one of the pair of electrodes is also taught.

The Hosokawa reference teaches it is old and well known in the art that the electrolysis time is adjusted in accordance to the thickness of the electroluminescent layer being formed (see column 15, lines 42-56) for the purpose of preventing color mixture and change in chromaticity even if a viewing angle is changed.

Furthermore, the Hu reference teaches in Figure 2, it is old and well known in the art to have adjusted the electroluminescent layer in the range of 6 nm (see column 27, lines 41-63) as disclosed by the Applicant to obtain the applying current time. The Hu reference also teaches the electroluminescent layer comprises a hole injecting layer (4a); a hole transporting layer (4b) and a light-emitting layer (junction where electron and hole recombine) and the hole transporting layer (4b) and the light-emitting layer are formed by vapor deposition (see column 8, lines 16-25 and column 30, lines 8-53) for the purpose of enhancing thermal stability and operational stability.

Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have utilize the current density of Zhung with adjusted the current applying time as taught by Hosokawa to form a electroluminescent layer with thickness and different components taught by Hu in order to prevent color mixture and change in chromaticity even if a viewing angle is changed and enhance thermal stability and operational stability. Further, it has been held that where the general conditions of a

claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Regarding to claim 9, Zhung discloses in Figures 5 and 7, the electroluminescent layer (200) comprises a compound selected from the group consisting of pyrrol, indol, thiophene, 3,4-ethylenedioxythiophene, benezene, naphthalene, azulene, and phenylene oxide (see column 5, lines 38-53).

Regarding to claim 10, Zhung discloses in Figures 5 and 7, the electroluminescent layer (200) comprises a compound selected from the group consisting of pyrrol, indol, thiophene, 3,4-ethylenedioxythiophene, benezene, naphthalene, azulene, and phenylene oxide (see column 5, lines 38-53).

Regarding to claim 11, Zhung discloses in Figures 5 and 7, the electroluminescent layer (200) comprises a compound selected from the group consisting of pyrrol, indol, thiophene, 3,4-ethylenedioxythiophene, benezene, naphthalene, azulene, and phenylene oxide (see column 5, lines 38-53).

Regarding to claim 12, Zhung discloses in Figures 5 and 7, the electroluminescent layer (200) comprises a compound selected from the group consisting of pyrrol, indol, thiophene, 3,4-ethylenedioxythiophene, benezene, naphthalene, azulene, and phenylene oxide (see column 5, lines 38-53).

Regarding to claim 13, a method for manufacturing an electric appliance having the electroluminescent device is merely an intended use of the electroluminescent device, and it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations (see MPEP 2114).

Regarding to claim 14, a method for manufacturing an electric appliance having the electroluminescent device is merely an intended use of the electroluminescent device, and it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations (see MPEP 2114).

Regarding to claim 15, a method for manufacturing an electric appliance having the electroluminescent device is merely an intended use of the electroluminescent device, and it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations (see MPEP 2114).

Regarding to claim 16, a method for manufacturing an electric appliance having the electroluminescent device is merely an intended use of the electroluminescent device, and it has been held that a recitation with respect to the manner in which a claimed

apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations (see MPEP 2114).

Regarding to claim 17, a method for manufacturing an electric appliance having the electroluminescent device is merely an intended use of the electroluminescent device, and it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations (see MPEP 2114).

Regarding to claim 18, a method for manufacturing an electric appliance having the electroluminescent device is merely an intended use of the electroluminescent device, and it has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations (see MPEP 2114).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following prior art are cited to further show the state of the art of a method for manufacturing an electroluminescent device.

U.S. Patent No. 5,089,359 to Ohsawa.

U.S. Patent No. 6,548,144 to Teshima.

U.S. Patent No. 6,656,339 to Talin.

U.S. Patent No. 6,656,393 to Yagi.

U.S. Patent No. 6,885,489 to Arai.

Japanese Patent No. 7-73969.

Japanese Patent No. 8-45667.

Japanese Patent No. 9-97679.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dalei Dong whose telephone number is (571)272-2370. The examiner can normally be reached on 8 A.M. to 5 P.M..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel can be reached on (571)272-2457. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

D.D.
April 27, 2005

Joseph Williams
Primary Examiner
Art Unit 2879